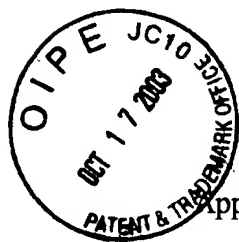


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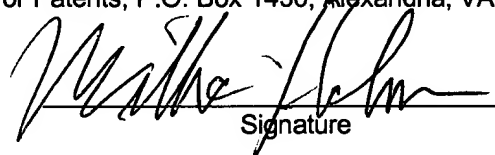


Applicant : D'Angelo, Thomas M.  
Appl'n./Serial No. : 09/533,741  
Filed : March 23, 2000  
Grp./Art Unit : 1722  
Title : METHOD OF MAKING CORRUGATED PART  
Examiner: : Staicovici, Stefan  
Atty. Docket No. : 1697-P3009-002

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on:

10-14-03  
Date

William J. Schramm  
Name

  
Signature

**DECLARATION UNDER 37 CFR 1.132 OF RICHARD J. FERRARI**

Richard J. Ferrari does hereby declare as follows:

1. I graduated from St. John's University with a BS degree in chemistry in 1953;
2. After two years of military service, 25 years was spent in research and development for 3 companies (1955-1980) in the field of polymer science, progressing from research chemist to Vice-President of Engineering. (See attached Fact Sheet) The R&D activity was principally directed at the development of plastic and elastomeric parts for automotive applications. The following thirteen (13) years were spent in the senior management of companies which supplied automotive interior trim parts. Additional details regarding these experiences are provided in the attached Fact Sheet. (Both the Olin Chemicals and Uniroyal Chemicals experiences noted were in their R&D labs/activities). During these periods I participated in and/or supervised patent activities.
3. I retired from Davidson/Textron at the end of 1993. I participated in merger and acquisition activity from 1994 to August 1997, when I became an equity investor and Chairman of the Board of Directors of Hahn Elastomer Corporation. I am active in this

position at the present time. Hahn Elastomer has rights to several patents through a combination of internal development and license. As a company it has grown from \$22 million in sales to approximately \$50 million in the last six years.

4. I am familiar with the above-identified patent application and the communication between the United States Patent & Trademark office and applicant. Hahn Elastomer Corporation is the assignee of the above-identified application.
5. Several years ago, Hahn became aware that many vehicle struts, which are located under –vehicle and exposed to road elements or grit, require a dust boot cover to maintain satisfactory durability and quality of performance. Some struts may be designed for the vehicle so that (dust boot) covers are not required. The struts are often used to transmit forces or isolate vibration; and they are, therefore, integral to the satisfactory operation of a vehicle. The (dust boot) cover performs an important function in the protection of these assemblies during normal use. Hahn also learned, at that time that many strut (dust boot) covers were made of flexible plastic and had a corrugated body (or center section) for ease of flexure during use. The manufacturing method used for these products was the blow molding process by which an extruded tube or parison of plastic material is dropped and suspended from a machine, followed by a molding step in which a two part mold encloses and crimps off a section of the tube or parison, thereby forming the part. While the molded plastic tube or parison may be extruded continuously, the mold action is intermittent. The process can be accelerated by having more than one two-part mold and indexing the molds in or out of position by a shuttle or rotary station machine, reducing the intermittency of the process. Each part is molded as a unit.
6. Hahn management and its engineers began an analysis to determine if a dust boot cover, which has a distinct shape in sections that are not corrugated, could be made by the continuous extrusion process in which the mold is not unitary, but is a series of elemental mold halves which form a continuous length of unitary molded parts. The analysis produced manufacturing feasibility and very favorable competitive cost analysis based on the higher throughput of an extrusion process for unitary parts made continuously from elemental mold halves.
7. Market Analysis and Structure. United States production for the first seven (7) months of this year (2003) totaled 7.1 million vehicles. This represents an annualized rate of less than 12.2 million vehicles produced in the U.S. This rate is about 10% below that of a good year (13.5 million +/-). Hahn serves the U.S. vehicle production market.

Dust boot covers can be used on each of four vehicle struts and, therefore, the maximum total market equates to approximately 48.7 million dust boots at current

production levels. However, this overstates the market as it is currently structured. Hahn has identified the market structure for these products by obtaining detailed feedback from both OEM and Tier I industry sources. These have been supplemented by our visits to car dealerships to identify and confirm the use of covers or lack thereof on specific vehicle models. Based on these data collections, Hahn has determined that:

- (A) Approximately 25 % of the vehicles produced, or about 3.04 million vehicles, use no dust boot covers at all. These are primarily (a) those vehicles which provide some natural shielding of the strut mechanism by fortuitous design and (b) those vehicles which avoid the expense of the covers at some sacrifice to reliability. These are generally some of the lower cost vehicles.
  - (B) Approximately 23 % of the vehicles produced, or about 2.8 million vehicles, use fabricated metal shields. This is usually when a large strut supplier, such as Arvin Meritor, has the metals fabrication capability to supplement the strut manufacture with the fabrication of a metal shield in-house.
  - (C) Approximately 52% of the vehicles produced or about 6.34 million vehicles, use polymeric dust boot covers [predominately of plastic (49%), a few of rubber (3%)]. This segment equates to approximately 25.36 million polymeric dust boot sites, which is the proper description of Hahn's market and market potential. Within this category, there are two subsets: (i) those large strut suppliers who, like Arvin Meritor, are integrated and manufacture covers in-house. These include Tenneco and Tokico, and (ii) other companies who are not integrated and either buy to supplement their own manufacture, or buy to supply other strut manufacturers.
8. Market Penetration and Sales: Due to the market structure, Hahn's path of penetration in this market will necessarily be: First, non-integrated companies (Cii), second-integrated companies (Ci), and lastly metal fabrication companies (B).

Hahn currently has in production dust boot covers totaling 2,960,000 individual units. This represents 11.7% of the available market. This volume was introduced into production over about the last 3 years. It represents an annual sales volume of over \$1 million.

By December 2003, Hahn will therefore have achieved a combined total of 6,720,000 dust boot covers, representing 26.5% of the available market in less than four (4) years. Hahn's annual sales will be \$2,352,000 for this product line. The vehicles represented by this business include the following nameplates or models:

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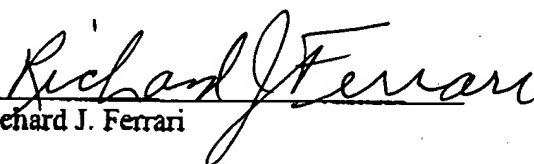
Ford Taurus, Ford Crown Victoria, Mercury Grand Marquis, Ford Escape, Nissan Pathfinder, Nissan Titan, GM Blazer, GM Envoy, and GM Avalanche.

Hahn believes that the proprietary nature of this development is unique and robust enough to achieve additional penetration of this market in Y2004 and beyond. However, we seek the protection of a patent award in order to safeguard the capital investment made to manufacture this kind of product and to support the cost of development work required to promote sales initiatives.

9. The products sold by Hahn having the sales identified above are covered by the claims in the above identified patent application and are described in the manufacturing process exemplified in the patent application and its drawings.

I declare under the penalty of perjury that the foregoing is true based on my personal knowledge, information and belief.

Date: October 6, 2003

  
Richard J. Ferrari

**FACT SHEET****RICHARD J. FERRARI****EXPERIENCE**

**President: Davidson Interior Trim/Taxtron, 1985-1993.**

- Drove sales from \$80 million to \$320 million – compound growth rate of 24% annually.
- Improved financial and operating statistics – *Profit, ROI, Cash Flow, Working Capital, Inventory Turns, Quality.*
- Growth Factors:
  - 75% Internal; 25% acquisition.
  - Expansion of one product line; addition of 3 new product lines.
  - Successful start up of 2 new plants.
  - Broad customer base.

**CAREER HIGHLIGHTS**

- Participated in the achievement of full service supplier status at Ford and Chrysler.
- Opened business development office in Detroit area including marketing, program management and product engineering.
- Converted production to business units with levels of J.I.T. Manufacture.
- Initiated and commercialized RIM fascia development and manufacture (1974).  
Resulted in the formation of a new division – Davidson Exterior Trim.
- Initiated and commercialized dry powder vinyl casting for interior automotive parts (1979).  
Resulted in a proprietary competitive advantage.
- Initiated flexible bright trim development (1977). Completed by others and commercialized in 1992.

**MANAGEMENT HISTORY**

- 8 years Company President, Davidson Interior Trim/Taxtron
- 5 years Executive Vice President, Davidson Rubber Co.
- 5 years Vice President Engineering, Davidson Rubber Co.
- 5 years Director R&D, Davidson Rubber Co.
- 4 years Manager, Olin Chemicals
- 11 years Entry Chemist to Group Leader, Uniroyal Chemicals

**EDUCATIONAL HISTORY**

- B.S., Chemistry – St. John's University, New York
- Training: Financial Operating Management, Communication, Damming Workshop. SPC, Kaisen, Design of Experiments

**RICHARD J. FERRARI AND ASSOCIATES, INC.**

ONE NEW HAMPSHIRE AVENUE

SUITE 125

PORTSMOUTH, NEW HAMPSHIRE 03801

PHONE: (603) 766-1940

FAX: (603) 766-1901

**M + A Activity****Due Diligence Program Participation**

<u>Company</u>	<u>Company Size</u> \$MM	<u>Principal</u>	<u>Result</u>
• Sheller-Globe (Pre - 1994)	\$850	Textron Corp. Team	Lost to UTA
• Automotive Ind. (Pre- 1994)	\$500	Textron Corp. Team	Lost to Mgmt. LBO
• Van-Dresser (Pre- 1994)	\$45	Interior Trim Div., Textron	Acquired
• Acustar Plastics (Pre- 1994)	\$320	Textron Corp. Team	Acquired
• Gencorp - RPD (1996)	\$100	Bain Capital	Acquired. Received Broker's fee
• Autosystems Manufacturing, Inc. (1997)	\$60	Bain Capital	Acquired. Received Broker's fee
• Hahn Elastomer (1997)	\$22	Edgewater Group, Ferrari & Associates	Acquired. Equity Investor.
• Plastigage Corp. (2000)	\$9	Hahn Elastomer	Acquired
• Atrex, Inc. (2000)	\$9	Hahn Elastomer	Acquired